Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

August 09, 2016

Meagan E. Ormand
Golder Associates Inc.
2108 W. Laburnum Ave.
Suite 200
Richmond, VA 23227

RE: Project: Bremo Weekly Process
Pace Project No.: 92307707

Dear Meagan Ormand:
Enclosed are the analytical results for sample(s) received by the laboratory on August 04, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
Project Manager

Enclosures

cc: Ron DiFrancesco, Golder Associates Inc.
Martha Smith, Golder Associates Inc.
Mike Williams, Golder Associates Inc

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Bremo Weekly Process
Pace Project No.: 92307707

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Bremo Weekly Process
Pace Project No.: 92307707

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92307707001	**T1-160803-1655-S3**	EPA 1664B	JMS	1	PASI-C
		EPA 200.7	CKJ	1	PASI-O
		Trivalent Chromium Calculation	CKJ	1	PASI-O
		EPA 200.8	DRS	10	PASI-O
		EPA 245.1	WAB	1	PASI-A
		SM 2540D	ALC	1	PASI-A
		EPA 218.7	AEM	1	PASI-O
		EPA 350.1	AES2	1	PASI-A
		SM 4500-Cl-E	AES2	1	PASI-A

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92307707

Method: **EPA 1664B**
Description: HEM, Oil and Grease
Client: Golder_Dominion_Bremo
Date: August 09, 2016

General Information:
1 sample was analyzed for EPA 1664B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92307707

Method: **EPA 200.7**
Description: 200.7 MET ICP
Client: Golder_Dominion_Bremo
Date: August 09, 2016

General Information:
1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92307707

Method: **Trivalent Chromium Calculation**
Description: Trivalent Chromium Calculation
Client: Golder_Dominion_Bremo
Date: August 09, 2016

General Information:
1 sample was analyzed for Trivalent Chromium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92307707

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: Golder_Dominion_Bremo
Date: August 09, 2016

General Information:
1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 313383

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 35258309004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1663200)
  - Selenium
- MSD (Lab ID: 1663201)
  - Selenium

R1: RPD value was outside control limits.

- MSD (Lab ID: 1663201)
  - Silver

Additional Comments:

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92307707

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: Golder_Dominion_Bremo
Date: August 09, 2016

General Information:
1 sample was analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92307707

Method: **SM 2540D**
Description: 2540D TSS, Low-Level
Client: Golder_Dominion_Bremo
Date: August 09, 2016

General Information:
1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92307707

Method: **EPA 218.7**
Description: Hexavalent Chromium by IC
Client: Golder_Dominion_Bremo
Date: August 09, 2016

General Information:
1 sample was analyzed for EPA 218.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 313284

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92307281001,92307707001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1663838)
  - Chromium, Hexavalent
- MSD (Lab ID: 1663839)
  - Chromium, Hexavalent

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 1662269)
  - Chromium, Hexavalent
- MSD (Lab ID: 1662270)
  - Chromium, Hexavalent

Additional Comments:

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92307707

Method: **EPA 350.1**
Description: 350.1 Ammonia
Client: Golder_Dominion_Bremo
Date: August 09, 2016

General Information:
1 sample was analyzed for EPA 350.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: Bremo Weekly Process
Pace Project No.: 92307707

Method: **SM 4500-Cl-E**
Description: 4500 Chloride
Client: Golder_Dominion_Bremo
Date: August 09, 2016

General Information:
1 sample was analyzed for SM 4500-Cl-E. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Bremo Weekly Process
Pace Project No.: 92307707

Sample: T1-160803-1655-S3 **Lab ID: 92307707001** Collected: 08/03/16 16:55 Received: 08/04/16 14:36 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:							
Collected By	**L. Hamelman**			1		08/03/16 17:02		
Collected Date	**08/03/16**			1		08/03/16 17:02		
Collected Time	**16:55**			1		08/03/16 17:02		
Field pH	**7.8**	Std. Units	0.10	1		08/03/16 17:02		
HEM, Oil and Grease	Analytical Method: EPA 1664B							
Oil and Grease	ND	mg/L	5.0	1		08/08/16 08:03		
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Tot Hardness asCaCO3 (SM 2340B	**151000**	ug/L	3300	1	08/06/16 06:18	08/08/16 12:02		
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	ND	ug/L	5.0	1		08/08/16 16:28	16065-83-1	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony	ND	ug/L	5.0	1	08/06/16 06:18	08/08/16 15:12	7440-36-0	
Arsenic	**30.3**	ug/L	5.0	1	08/06/16 06:18	08/08/16 15:12	7440-38-2	
Cadmium	ND	ug/L	1.0	1	08/06/16 06:18	08/08/16 15:12	7440-43-9	
Copper	ND	ug/L	5.0	1	08/06/16 06:18	08/08/16 15:12	7440-50-8	
Lead	ND	ug/L	5.0	1	08/06/16 06:18	08/08/16 15:12	7439-92-1	
Nickel	ND	ug/L	5.0	1	08/06/16 06:18	08/08/16 15:12	7440-02-0	
Selenium	ND	ug/L	5.0	1	08/06/16 06:18	08/08/16 15:12	7782-49-2	
Silver	ND	ug/L	0.40	1	08/06/16 06:18	08/08/16 15:12	7440-22-4	
Thallium	ND	ug/L	1.0	1	08/06/16 06:18	08/08/16 15:12	7440-28-0	
Zinc	ND	ug/L	25.0	1	08/06/16 06:18	08/08/16 15:12	7440-66-6	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.10	1	08/05/16 10:30	08/05/16 14:03	7439-97-6	
2540D TSS, Low-Level	Analytical Method: SM 2540D							
Total Suspended Solids	ND	mg/L	1.0	1		08/05/16 12:13		
Hexavalent Chromium by IC	Analytical Method: EPA 218.7							
Chromium, Hexavalent	ND	ug/L	1.0	1		08/08/16 11:18	18540-29-9	M1
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	ND	mg/L	0.20	1		08/05/16 15:30	7664-41-7	
4500 Chloride	Analytical Method: SM 4500-Cl-E							
Chloride	**62.8**	mg/L	25.0	5		08/06/16 11:46	16887-00-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92307707

QC Batch: 324119 | Analysis Method: EPA 1664B
QC Batch Method: EPA 1664B | Analysis Description: 1664 HEM, Oil and Grease
Associated Lab Samples: 92307707001

METHOD BLANK: 1795929 | Matrix: Water
Associated Lab Samples: 92307707001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	08/08/16 08:01	

LABORATORY CONTROL SAMPLE: 1795930

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	36.5	91	78-114	

MATRIX SPIKE SAMPLE: 1795931

Parameter	Units	92307559001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	40	37.8	95	78-114	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92307707

QC Batch: 323968
QC Batch Method: EPA 245.1
Analysis Method: EPA 245.1
Analysis Description: 245.1 Mercury
Associated Lab Samples: 92307707001

METHOD BLANK: 1795212 Matrix: Water
Associated Lab Samples: 92307707001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.10	08/05/16 13:58	

LABORATORY CONTROL SAMPLE: 1795213

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.6	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1795214 1795215

Parameter	Units	92307707001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.5	2.5	99	101	70-130	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92307707

QC Batch: 313382 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 MET
Associated Lab Samples: 92307707001

METHOD BLANK: 1663192 Matrix: Water
Associated Lab Samples: 92307707001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3300	08/08/16 11:19	

LABORATORY CONTROL SAMPLE: 1663193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	89300	108	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1663194 1663195

Parameter	Units	35257673001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Tot Hardness asCaCO3 (SM 2340B	ug/L	239000	82700	82700	333000	329000	114	110	70-130	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1663196 1663197

Parameter	Units	35258475002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Tot Hardness asCaCO3 (SM 2340B	ug/L	15500	82700	82700	105000	106000	108	110	70-130	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92307707

QC Batch: 313383 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 92307707001

METHOD BLANK: 1663198 Matrix: Water
Associated Lab Samples: 92307707001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	ND	5.0	08/08/16 14:48	
Arsenic	ug/L	ND	5.0	08/08/16 14:48	
Cadmium	ug/L	ND	1.0	08/08/16 14:48	
Copper	ug/L	ND	5.0	08/08/16 14:48	
Lead	ug/L	ND	5.0	08/08/16 14:48	
Nickel	ug/L	ND	5.0	08/08/16 14:48	
Selenium	ug/L	ND	5.0	08/08/16 14:48	
Silver	ug/L	ND	0.40	08/08/16 14:48	
Thallium	ug/L	ND	1.0	08/08/16 14:48	
Zinc	ug/L	ND	25.0	08/08/16 14:48	

LABORATORY CONTROL SAMPLE: 1663199

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	50	49.2	98	85-115	
Arsenic	ug/L	50	49.7	99	85-115	
Cadmium	ug/L	5	4.9	99	85-115	
Copper	ug/L	50	50.1	100	85-115	
Lead	ug/L	50	50.6	101	85-115	
Nickel	ug/L	50	51.4	103	85-115	
Selenium	ug/L	50	51.8	104	85-115	
Silver	ug/L	5	5.0	100	85-115	
Thallium	ug/L	50	50.3	101	85-115	
Zinc	ug/L	250	251	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1663200 1663201

Parameter	Units	35258309004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Antimony	ug/L	0.50U	50	50	49.5	49.3	99	98	70-130	0	
Arsenic	ug/L	0.00050 U	50	50	47.6	47.7	95	95	70-130	0	
Cadmium	ug/L	1.8	5	5	6.6	6.6	96	96	70-130	0	
Copper	ug/L	128	50	50	176	172	96	88	70-130	2	
Lead	ug/L	0.00050 U	50	50	52.4	52.4	104	104	70-130	0	
Nickel	ug/L	3.1	50	50	50.5	50.9	95	96	70-130	1	
Selenium	ug/L	0.00050 U	50	50	27.5	27.2	54	54	70-130	1	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92307707

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1663200 1663201

Parameter	Units	35258309004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Silver	ug/L	0.17	5	5	5.0	6.4	96	125	70-130	25	R1
Thallium	ug/L	0.50U	50	50	51.8	51.7	103	103	70-130	0	
Zinc	ug/L	93.3	250	250	315	317	89	90	70-130	1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92307707

QC Batch: 323982 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 92307707001

METHOD BLANK: 1795283 Matrix: Water
Associated Lab Samples: 92307707001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	08/05/16 12:11	

LABORATORY CONTROL SAMPLE: 1795284

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	238	95	90-110	

SAMPLE DUPLICATE: 1795285

Parameter	Units	92307482001 Result	Dup Result	RPD	Qualifiers
Total Suspended Solids	mg/L	14.0	14.6	4	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92307707

QC Batch: 313284
QC Batch Method: EPA 218.7
Analysis Method: EPA 218.7
Analysis Description: Chromium, Hexavalent IC
Associated Lab Samples: 92307707001

METHOD BLANK: 1662267 Matrix: Water
Associated Lab Samples: 92307707001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	ug/L	ND	1.0	08/08/16 10:52	

LABORATORY CONTROL SAMPLE: 1662268

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	ug/L	.075	.075J	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1662269 1662270

Parameter	Units	92307281001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium, Hexavalent	ug/L	2.1	.25	.25	2.4J	2.4J	126	127	85-115	0	M6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1663838 1663839

Parameter	Units	92307707001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium, Hexavalent	ug/L	ND	.075	.075	.24J	.24J	116	118	85-115	0	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92307707

QC Batch: 323976 | Analysis Method: EPA 350.1
QC Batch Method: EPA 350.1 | Analysis Description: 350.1 Ammonia
Associated Lab Samples: 92307707001

METHOD BLANK: 1795247 | Matrix: Water
Associated Lab Samples: 92307707001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.20	08/05/16 15:24	

LABORATORY CONTROL SAMPLE: 1795248

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.3	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1795249 1795250

Parameter	Units	92307707001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Nitrogen, Ammonia	mg/L	ND	5	5	5.1	5.1	103	102	90-110	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92307707

QC Batch: 324089
QC Batch Method: SM 4500-Cl-E
Analysis Method: SM 4500-Cl-E
Analysis Description: 4500 Chloride
Associated Lab Samples: 92307707001

METHOD BLANK: 1795841 Matrix: Water
Associated Lab Samples: 92307707001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	5.0	08/06/16 11:30	

LABORATORY CONTROL SAMPLE: 1795842

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.2	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1795843 1795844

Parameter	Units	92307707001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chloride	mg/L	62.8	10	10	72.9	73.2	102	105	90-110	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Bremo Weekly Process
Pace Project No.: 92307707

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
R1	RPD value was outside control limits.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Bremo Weekly Process
Pace Project No.: 92307707

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92307707001	**T1-160803-1655-S3**				
92307707001	**T1-160803-1655-S3**	EPA 1664B	324119		
92307707001	**T1-160803-1655-S3**	EPA 200.7	313382	EPA 200.7	313541
92307707001	**T1-160803-1655-S3**	Trivalent Chromium Calculation	313691		
92307707001	**T1-160803-1655-S3**	EPA 200.8	313383	EPA 200.8	313481
92307707001	**T1-160803-1655-S3**	EPA 245.1	323968	EPA 245.1	323992
92307707001	**T1-160803-1655-S3**	SM 2540D	323982		
92307707001	**T1-160803-1655-S3**	EPA 218.7	313284		
92307707001	**T1-160803-1655-S3**	EPA 350.1	323976		
92307707001	**T1-160803-1655-S3**	SM 4500-Cl-E	324089		

Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: May 24, 2016 Page 1 of 2
	Document No.: F-MEC-CS-009-Rev.03	Issuing Authority: Pace Mechanicsville Quality Office

Sample Condition Upon Receipt

Client Name: Golder/Bremo

Project WO#: 92307707

92307707

Courier: ☐ Commercial ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☑ Pace ☐ Other:____

Custody Seal Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No

Date/Initials Person Examining Contents: 8-4-16 RSB

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other:____

Thermometer: ☒ RMD001 ☐____ **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☑ Samples on ice, cooling process has begun

Correction Factor: 0.0°C **Cooler Temp Corrected (°C):** 2.6 **Biological Tissue Frozen?** ☐ Yes ☐ No ☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☑ Yes	☐ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WW	☑ Yes	☐ No	☐ N/A	9.
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	10. HNO3 pH<2; HCl pH<2; H2SO4 pH<2; NaOH pH>12; NaOH/ZnOAc pH>9
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	☑ Yes	☐ No	☐ N/A	
Samples checked for dechlorination?	☐ Yes	☐ No	☑ N/A	11.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	12.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	13.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):____				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Sample Discrepancy: _____

_____

Project Manager SCURF Review: NMG **Date:** 8/5/16

Project Manager SRF Review: NMG **Date:** 8/5/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUS Y / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A ent Information:

Golder Associates	
2108 W Laburnum Ave, Ste 200	
Richmond,VA 23227	
Mormand@golder.com	
4-551-0129	Fax: 804-358-2900
Due Date/TAT:	~~24 HOUR~~ * 3-Day *

Section B Required Project Information:

Report To:	Mormand@golder.com
Copy To:	Martha_Smith@golder.com
	Ron_Difrancesco@golder.com
Purchase Order No.:	
Project Name:	Bremo Weekly ~~Compliance~~ Process
Project Number:	1520-347.~~220~~ 220

Section C Invoice Information:

Attention:	Meagan Ormand
Company Name:	Golder Associates
Address:	gaiapdataentry_invoices@golder.com
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: VA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.8 - Sb, As, Cd, Cr (III)	200.8 - Pb, Ni, Se, Zn, Cu	200.8 - Ag, Th	245.1 - Hg	218.6(7) - Cr (VI)	SM4500 - Chloride	1664B - Oil&Grease	350.1 - Ammonia-N	SM2540D - TSS	200.7 - Hardness			Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 92307707
TI-160803-1655-S3	WW	C	—	—	8/3/16	16:55		10	X		X	X	X			X		X	X	X	X	X	X	X	X	X	X			N	pH analysis @ 17:02; pH = 7.8

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
o be performed under Golder-Pace MSA dated	[signature] Golder	8/4/16	1436	[signature]	8/4/16	1436				
	[signature]	8/4/16	16:17	Rachel Burruss	8-4-16	1617	2.6	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: L Henderson

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 08/03/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007